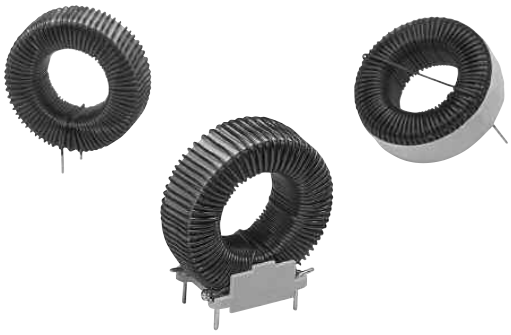
LCPI

Toroid power inductors



Applications

- Filters
- Buck and boost switches
- Chokes

Product features

- Low loss, iron powder cores with stable electrical operating characteristics maximize inductor efficiency by minimizing copper losses
- Available in vertical and horizontal self leaded and header mounted configurations
- Inductance values range from 10 uH to 1000 uH
- Current values range from 1.5 A to 29.5 A
- Meets UL 94V-0 flammability standard
- Iron powder core material

Environmental Data

- Storage temperature range (Component): -40 °C to +105 °C
- Operating temperature range: -40 °C to +105 °C (ambient plus self-temperature rise)

RoHS

Product Specifications

Vertical Part Number	Horizontal Part Number	Header Mounted Part Number	OCL(1) µH +/- 20%	I DC(2) (A)	I SAT(3) (A)	Volt-µsec(4) Vµs	Energy(5) µJ	DCR (Ω)(6) max
CTX10-1-52-R	CTX10-1-52LP-R	CTX10-1-52M-R	10.14	2.4	2.1	5.4	15	0.0481
CTX20-1-52-R	CTX20-1-52LP-R	CTX20-1-52M-R	20.22	1.8	2.2	7.8	36	0.0829
CTX50-1-52-R	CTX50-1-52LP-R	CTX50-1-52M-R	50.29	2.6	2.7	16.3	130	0.0715
CTX100-1-52-R	CTX100-1-52LP-R	CTX100-1-52M-R	100.40	2.5	2.4	27.5	197	0.1060
CTX150-1-52-R	CTX150-1-52LP-R	CTX150-1-52M-R	151.70	2.1	2.3	35.7	283	0.1620
CTX250-1-52-R	CTX250-1-52LP-R	CTX250-1-52M-R	250.90	1.9	2.2	47.8	421	0.2210
CTX500-1-52-R	CTX500-1-52LP-R	CTX500-1-52M-R	505.00	1.7	1.9	77.9	645	0.3610
CTX750-1-52-R	CTX750-1-52LP-R	CTX750-1-52M-R	754.40	1.8	2.4	114.3	1530	0.4340
CTX1000-1-52-R	CTX1000-1-52LPR	CTX1000-1-52M-R	1004.00	1.5	2.1	131.9	1530	0.6380
CTX10-2-52-R	CTX10-2-52LP-R	CTX10-2-52M-R	9.60	4.7	4.5	6.6	68	0.0183
CTX20-2-52-R	CTX20-2-52LP-R	CTX20-2-52M-R	19.60	3.2	3.2	9.4	69	0.0392
CTX50-2-52-R	CTX50-2-52LP-R	CTX50-2-52M-R	50.00	4.9	4.9	21.3	420	0.0326
CTX100-2-52-R	CTX100-2-52LP-R	CTX100-2-52M-R	101.70	4.4	4.3	35.0	643	0.0534
CTX150-2-52-R	CTX150-2-52LP-R	CTX150-2-52M-R	148.00	4.3	4.0	47.6	829	0.0719
CTX250-2-52-R	CTX250-2-52LP-R	CTX250-2-52M-R	251.10	4.2	4.2	66.0	1540	0.0833
CTX500-2-52-R	CTX500-2-52LP-R	CTX500-2-52M-R	499.40	3.1	3.3	104.0	1890	0.1830
CTX750-2-52-R	CTX750-2-52LP-R	CTX750-2-52M-R	749.30	3.4	3.4	147.3	2960	0.2080
CTX10-5-52-R	CTX10-5-52LP-R	CTX10-5-52M-R	9.68	8.7	11.1	9.4	417	0.0104
CTX20-5-52-R	CTX20-5-52LP-R	CTX20-5-52M-R	21.25	7.8	9.3	16.0	643	0.0260
CTX50-5-52-R	CTX50-5-52LP-R	CTX50-5-52M-R	49.60	7.6	9.4	29.3	1530	0.0248
CTX100-5-52-R	CTX100-5-52LP-R	CTX100-5-52M-R	97.20	8.2	7.5	45.7	1890	0.0267
CTX150-5-52-R	CTX150-5-52LP-R	CTX150-5-52M-R	150.60	7.7	7.5	66.0	2960	0.0401
CTX250-5-52-R	CTX250-5-52LP-R		254.40	9.2	8.1	102.4	5860	0.0400
CTX10-7-52-R	CTX10-7-52LP-R	CTX10-7-52M-R	10.04	11.4	13.5	11.0	640	0.0080
CTX20-7-52-R	CTX20-7-52LP-R	CTX20-7-52M-R	20.96	11.4	14.5	19.1	1540	0.0110
CTX50-7-52-R	CTX50-7-52LP-R	CTX50-7-52M-R	52.27	10.5	10.2	33.5	1900	0.0163
CTX100-7-52-R	CTX100-7-52LP-R		101.40	12.0	9.1	54.2	2960	0.0167
CTX150-7-52-R	CTX150-7-52LP-R		152.80	12.8	10.5	79.3	5900	0.0204
CTX10-10-52-R	CTX10-10-52LP-R		10.04	16.9	20.9	13.2	1530	0.0051
CTX20-10-52-R	CTX20-10-52LP-R		21.17	16.0	16.0	21.3	1900	0.0070
CTX50-10-52-R	CTX50-10-52LP-R		52.37	13.9	12.7	38.9	2960	0.0124
CTX100-10-52-R	CTX100-10-52LPR		99.38	17.6	13.0	64.0	5880	0.0109
CTX10-16-52-R	CTX10-16-52LP-R		9.90	27.3	29.3	16.9	2970	0.0032
CTX20-16-52-R	CTX20-16-52LP-R		19.24	31.5	29.5	28.1	5860	0.0034

Notes:

(1) Open circuit inductance test parameters: 100 kHz, 0.250 Vrms, 0 Adc.
(2) DC current for an approximate ΔT of 30 °C at +75 °C Ambient with no core loss. See Chart 2 for derating of I_{dc} with core loss.
(3) Peak current for an approximate 30% roll-off in OCL. For other current levels see Chart 1.
(4) Applied Volt-Time product (Vµs) across the inductor. This value represents the Vµs at 100 kHz necessary to generate a core loss equal to 10% of the total losses for 30°C rise. For other frequencies and operating levels see Chart 2. (Note: skin effect losses not included.)
(5) Energy storage (µJ) at ISAT. For other current levels see Chart 1.
(6) Maximum D.C. resistance at +20 °C.

Dimensions- mm

Vertical and Horizontal Self Leaded Mounting Options

Vertical P/N See Figure 1	Horizontal P/N See Figure 2	OD (max)	ID (typ)	Ht (max)	X (typ)	Y (typ)	T (typ)	H (typ)
CTX10-1-52-R	CTX10-1-52LP-R	8.6	0.0	4.7	3.8	7.3	0.42	0.67
CTX20-1-52-R	CTX20-1-52LP-R	9.1	0.0	6.7	5.6	7.4	0.37	0.62
CTX50-1-52-R	CTX50-1-52LP-R	16.2	4.2	9.0	7.5	13.7	0.58	0.83
CTX100-1-52-R	CTX100-1-52LP-R	15.5	4.2	12.4	10.7	13.7	0.58	0.83
CTX150-1-52-R	CTX150-1-52LP-R	20.7	6.6	9.4	7.8	18.8	0.52	0.77
CTX250-1-52-R	CTX250-1-52LP-R	20.9	6.0	13.0	11.0	18.8	0.52	0.77
CTX500-1-52-R	CTX500-1-52LP-R	24.0	9.0	15.3	14.0	21.2	0.52	0.77
CTX750-1-52-R	CTX750-1-52LP-R	29.8	11.7	17.4	15.6	28.2	0.52	0.77
CTX1000-1-52-R	CTX1000-1-52LP-R	29.8	11.7	17.1	15.5	28.0	0.46	0.71
CTX10-2-52-R	CTX10-2-52LP-R	12.7	0.0	7.8	6.3	11.0	0.71	0.96
CTX20-2-52-R	CTX20-2-52LP-R	12.5	0.0	7.5	6.3	11.0	0.58	0.83
CTX50-2-52-R	CTX50-2-52LP-R	21.6	6.1	13.6	11.0	19.5	0.89	1.14
CTX100-2-52-R	CTX100-2-52LP-R	24.0	8.8	16.6	13.9	21.8	0.89	1.14
CTX150-2-52-R	CTX150-2-52LP-R	30.6	11.2	11.4	9.3	28.5	0.80	1.05
CTX250-2-52-R	CTX250-2-52LP-R	31.2	9.1	19.0	15.7	28.5	0.89	1.14
CTX500-2-52-R	CTX500-2-52LP-R	36.7	11.7	14.8	12.5	34.5	0.71	0.96
CTX750-2-52-R	CTX750-2-52LP-R	43.3	19.9	18.2	15.8	41.5	0.80	1.05
CTX10-5-52-R	CTX10-5-52LP-R	22.2	5.4	13.9	11.5	19.9	1.11	1.36
CTX20-5-52-R	CTX20-5-52LP-R	24.5	8.8	16.6	14.5	22.0	0.89	1.14
CTX50-5-52-R	CTX50-5-52LP-R	32.3	10.1	18.9	16.5	28.8	1.11	1.36
CTX100-5-52-R	CTX100-5-52LP-R	37.8	11.2	16.8	13.6	35.5	1.24	1.49
CTX150-5-52-R	CTX150-5-52LP-R	46.4	18.8	19.8	16.8	43.4	1.24	1.49
CTX250-5-52-R	CTX250-5-52LP-R	53.7	18.8	24.3	20.1	49.4	1.38	1.63
CTX10-7-52-R	CTX10-7-52LP-R	25.7	6.5	18.0	16.0	22.4	1.38	1.63
CTX20-7-52-R	CTX20-7-52LP-R	32.4	8.5	19.8	16.8	29.2	1.38	1.63
CTX50-7-52-R	CTX50-7-52LP-R	39.0	10.8	16.8	13.9	35.7	1.38	1.63
CTX100-7-52-R	CTX100-7-52LP-R	48.5	17.1	21.8	17.2	43.4	1.73	1.98
CTX150-7-52-R	CTX150-7-52LP-R	54.5	17.1	25.4	21.2	50.9	1.73	1.98
CTX10-10-52-R	CTX10-10-52LP-R	34.0	7.0	21.4	17.0	29.6	1.73	1.98
CTX20-10-52-R	CTX20-10-52LP-R	40.5	9.0	18.0	14.3	35.2	1.73	1.98
CTX50-10-52-R	CTX50-10-52LP-R	47.5	17.1	21.3	17.5	42.8	1.73	1.98
CTX100-10-52-R	CTX100-10-52LP-R	57.0	15.0	27.5	21.3	50.6	2.15	2.45
CTX10-16-52-R	CTX10-16-52LP-R	50.3	13.0	24.0	18.6	43.0	2.41	2.70
CTX20-16-52-R	CTX20-16-52LP-R	59.0	13.0	28.0	23.0	50.7	2.69	2.99

Note: All dimensions are in millimeters.

VERTICAL SELF LEADED MOUNT

HORIZONTAL SELF LEADED MOUNT

FIGURE 1

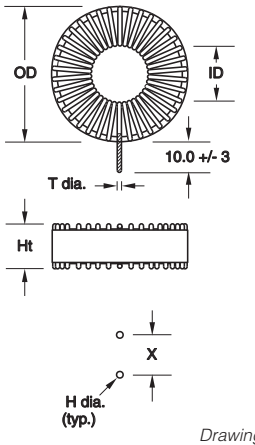
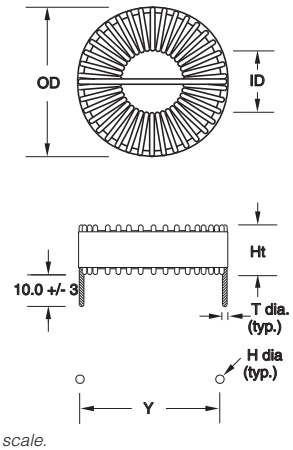


FIGURE 2



Drawings are not to scale.

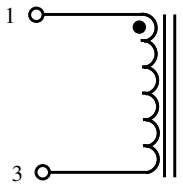
Dimensions- mm

Header Mounted Option

Header Mounted Part Number	See Figure #	OD (max)	A (max)	B (max)	C (max)	X (typ)	Y (typ)	T (typ)	H (typ)
CTX10-1-52M-R	3	8.6	9.4	9.4	6.9	6.5	6.5	—	—
CTX20-1-52M-R	3	9.1	9.4	9.4	9.0	6.5	6.5	—	—
CTX50-1-52M-R	4	16.2	19.6	16.1	20.0	15.3	6.4	—	—
CTX100-1-52M-R	4	15.5	19.6	16.1	19.7	15.3	6.4	—	—
CTX150-1-52M-R	4	20.7	19.6	16.1	24.2	15.3	6.4	—	—
CTX250-1-52M-R	5	20.9	31.0	16.0	22.5	20.3	10.2	1.20	1.45
CTX500-1-52M-R	5	24.0	35.4	21.7	25.0	23.0	15.4	1.20	1.45
CTX750-1-52M-R	5	29.8	35.4	21.7	31.6	23.0	15.4	1.20	1.45
CTX1000-1-52M-R	5	29.8	35.4	21.7	31.2	23.0	15.4	1.20	1.45
CTX10-2-52M-R	3	12.7	13.6	11.4	11.7	10.8	7.5	—	—
CTX20-2-52M-R	3	12.5	13.6	11.4	11.4	10.8	7.5	—	—
CTX50-2-52M-R	5	21.6	31.0	16.0	23.5	20.3	10.2	1.20	1.45
CTX100-2-52M-R	5	24.0	35.4	21.7	26.0	23.0	15.4	1.20	1.45
CTX150-2-52M-R	5	30.6	31.0	16.0	32.5	20.3	10.2	1.20	1.45
CTX250-2-52M-R	5	31.2	35.4	21.7	33.4	23.0	15.4	1.20	1.45
CTX500-2-52M-R	5	36.7	31.0	16.0	38.4	20.3	10.2	1.20	1.45
CTX750-2-52M-R	5	43.3	35.4	21.7	45.4	23.0	15.4	1.20	1.45
CTX10-5-52M-R	5	22.2	31.0	16.0	22.7	20.3	10.2	1.20	1.45
CTX20-5-52M-R	5	24.5	35.4	21.7	25.5	23.0	15.4	1.20	1.45
CTX50-5-52M-R	5	32.3	35.4	21.7	33.7	23.0	15.4	1.11	1.36
CTX100-5-52M-R	5	37.8	35.4	21.7	40.2	23.0	15.4	1.24	1.49
CTX150-5-52M-R	5	46.4	35.4	21.7	47.0	23.0	15.4	1.24	1.49
CTX10-7-52M-R	5	25.7	35.4	21.7	26.7	23.0	15.4	1.38	1.63
CTX20-7-52M-R	5	32.4	35.4	21.7	34.2	23.0	15.4	1.38	1.63
CTX50-7-52M-R	5	39.0	35.4	21.7	40.3	23.0	15.4	1.38	1.63

Note: All dimensions are in millimeters.

CONNECTION DIAGRAM



HEADER MOUNT

FIGURE 3

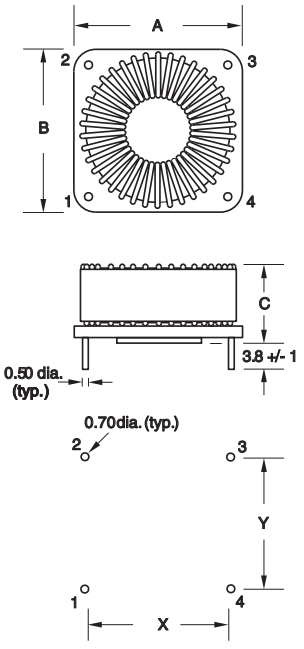


FIGURE 4

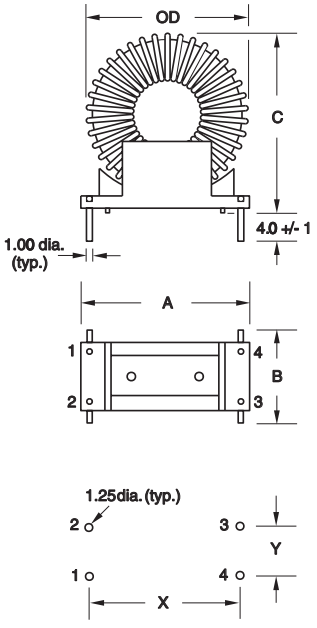
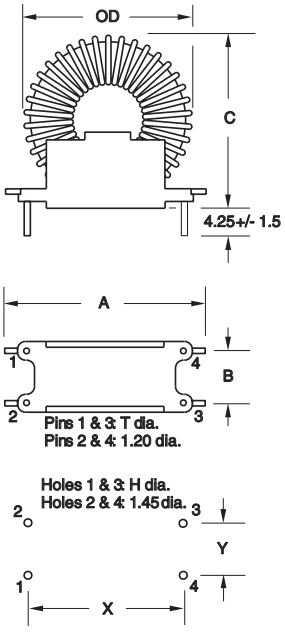


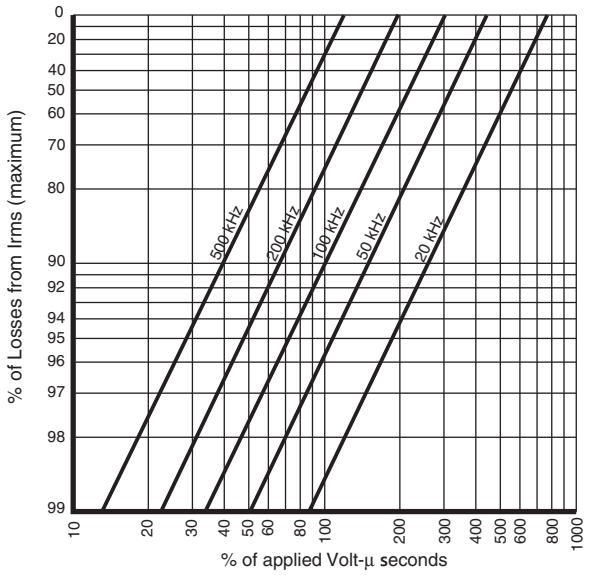
FIGURE 5



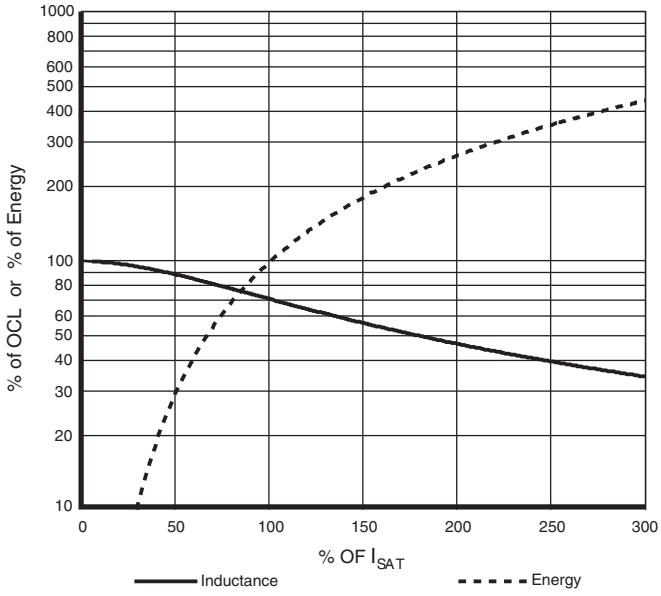
Drawings are not to scale.

Figure4

Core loss

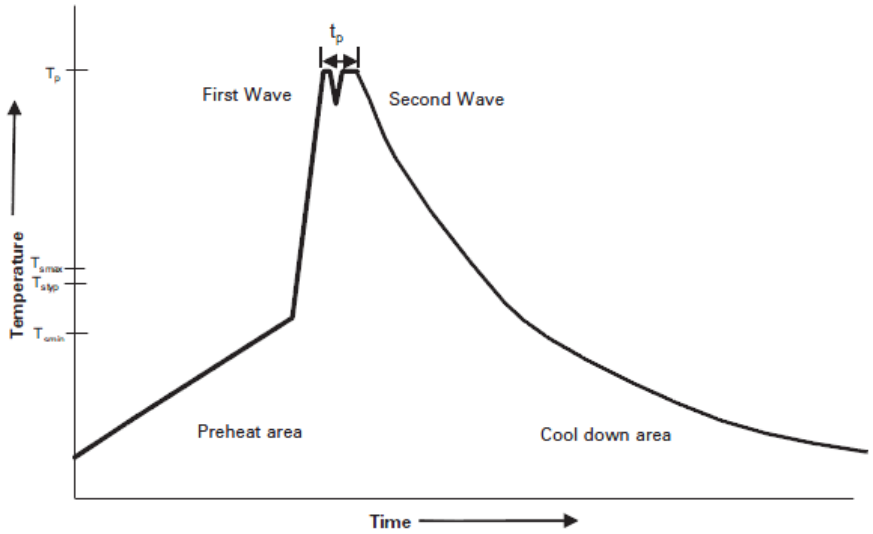


Inductance characteristics



Wave solder profile- Through-hole components

Reflow soldering not recommended



Reference EN 61760-1:2006

Profile Feature		Standard SnPb Solder	Lead (Pb) Free Solder
Preheat	• Temperature min. (T_{smin})	100°C	100°C
	• Temperature typ. (T_{styp})	120°C	120°C
	• Temperature max. (T_{smax})	130°C	130°C
	• Time (T_{smin} to T_{smax}) (t_s)	70 seconds	70 seconds
Δ preheat to max Temeperature		150°C max.	150°C max.
Peak temperature (T_P)*		235°C – 260°C	250°C – 260°C
Time at peak temperature (t_p)		10 seconds max 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate		~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~5 K/s max
Time 25°C to 25°C		4 minutes	4 minutes

Manual solder

350°C, 4-5 seconds. (by soldering iron), generally manual, hand soldering is not recommended.

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Powering Business Worldwide

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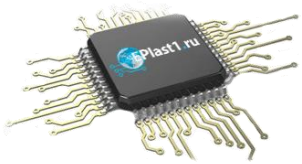
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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